



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,015	07/14/2003	Eun-Sung Seo	9898-291	9260

20575 7590 01/05/2007  
MARGER JOHNSON & MCCOLLOM, P.C.  
210 SW MORRISON STREET, SUITE 400  
PORTLAND, OR 97204

EXAMINER
----------

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
----------	--------------

2811

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/620,015

Applicant(s)

SEO ET AL.

Examiner

Shouxiang Hu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 15-17 are objected to because of the following informalities and/or defects:

In Claim 15, is the term of "the connecting line regions the laser fuses" intended to mean: the connecting line regions of the laser fuses?

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 5, 10, 15 and 18 each recite the subject matters of a lateral size of the fuse bank in the first direction is directly proportional to a number of fuses times a pitch between the connecting line regions of the fuse.

However, they each fail to clarify how the parameter of the term of "a number of fuses" is defined, does it mean the total or a portion of all fuses in the recited fuse bank; and/or what is/are the relationship(s) between the fuses that are counted in the term of "a number of fuses" and the fuses or fuse regions also recited in the claims, and/or, how the counted fuses are chosen from all of the fuses of the claim device.

Furthermore, each of the claims also fails to clarify in what sense the two relevant items are in the recited "directly proportional" relationship, given that the claim is directed to an individual final product. In such an individual final product, there should be only one fixed lateral size with a fixed number of fuses and a fixed size for the recited pitch. In other words, in an individual final product as that defined in the claims, each of the recited lateral size, the number of fuses and the recited pitch is a non-changing parameter, which in turn also causes the recited production (a number of fuses times a pitch between the connecting line regions of the fuses) to be fixed or non-changing, in the claimed individual final product. It is not clear how such a fixed or non-changing lateral size could be in what way directly proportional to the fixed or non-changing production as recited in the same individual final product.

In addition, the recited subject matters may imply that there may be a variety of different lateral sizes corresponding to a variety of fuse numbers and/or a variety of pitches in the recited manner of "directly proportional" in the same final product. Thus, it is not definitely clear about how many different lateral sizes and/or how many different pitches exist in the claimed individual final structure. If there only have one lateral size and one pitch in the claimed individual final product, the size relationship between them should be defined by the ratio of the two, instead of the recited term of "directly proportional".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6 and 9, insofar as being in compliance with 35 U.S.C. 112 and as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 102(b) as being anticipated by Yoon (KR 2001-0029286 (Application No. 99-42035), June 2001; of record).

Yoon discloses a fuse bank (Figs. 2-4; also see US 6,448,626 for its English translation), comprising: first and second fuses (313 and 314), each having a fuse region (the corresponding section inside 323) in a first direction, a first connecting line region (including a corresponding upper edge portion in 323 and the corresponding portion in 321) bent along a second direction, and a second connecting line region (including a corresponding lower edge portion in 323 and the corresponding portion in 322) bent along a third direction.

Furthermore, it is noted that the lateral size (referred hereafter as S) of the fuse bank of Yoon in the first direction can naturally be regarded to be directly proportional to a production of a number of fuses (N) times the pitch (P), as for any given N and P, there always exists a coefficient (k) to satisfy the directly proportional relationship between S and the production of N and P as following:

$$S = k \times (N \times P).$$

Art Unit: 2811

And/or, the directly proportional relationship between S and the production of N and P naturally exists in Yoon also because that, for any given N, the ratio of S and the production of N and P can remain to <sup>be</sup> a constant if the vertical size of the bank is changed at a same rate as that of the horizontal size (which is directly proportional to the production of N and P).

Regarding claims 5, 6 and 9, it is noted that the first pair of fuses (311 and 312) and second pair of fuses (313 and 314) can be regarded as the first and second fuse groups, respectively; and/or, that the device of Yoon is for a fuse-based defect-correctable DRAM, which normally naturally includes a large amount of repeating basic fuse structures like the one shown in Figs. 2 and/or 3.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 7, 8 and 10-20, insofar as being in compliance with 35 U.S.C. 112 and as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon in view of AAPA (Applicant's Admitted Prior Art) and/or Sakuta (Sakuta et al., US 5,208,782).

The disclosure of Yoon is discussed as applied to claims 1, 2, 5, 6 and 9 above.

Although Yoon does not expressly disclose that the connecting lines can be bent so as to have a right angle to the fuse region's direction, and/or that neighboring fuse banks/groups can be symmetrical about the direction perpendicular to the fuse region's direction, one of ordinary skill in the art would readily recognize that any or all of the connecting lines can be formed perpendicular to the fuse region's direction for obtained a desirable interconnection/orientation layout and/or for reducing layout space, as evidenced in AAPA (see Fig. 2); and/or that such type of perpendicular-direction symmetrical layout is one of the most commonly used circuit layouts in the art for forming the commonly desirably mirror-image-type symmetrical circuit layout and/or for reducing circuit space, as evidenced in Sakuta (see the symmetric circuit layouts in Figs. 4-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the right-angle connecting lines of AAPA and/or the perpendicular-direction symmetrical circuit layout of Sakuta, so that a memory device with desired layout, and/or with reduced space, for the connecting lines and/or for the memory circuits therein.

### ***Response to Arguments***

Applicant's arguments filed on October 16, 2006, have been fully considered but they are not persuasive. Responses to these arguments have been fully incorporated into the claim rejections and/or objections set forth above in this office action.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Friday, 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard T. Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



Art Unit: 2811

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH  
December 18, 2006



SHOUXIANG HU  
PRIMARY EXAMINER